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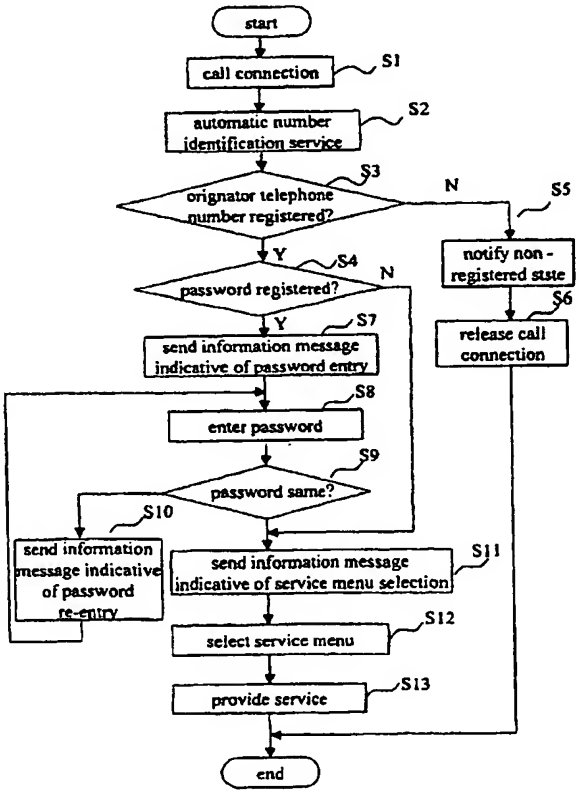
(54) Title: METHOD FOR PROVIDING PERSONAL INFORMATION MANAGEMENT SERVICE OVER COMMUNICATION NETWORK



(57) Abstract: A method for providing a personal information management service over a communication network. A user accesses a communication gateway (30) using a communication terminal (10), and the communication gateway (30) identifies the user using an automatic number identification service. If the user selects a desired service menu using the communication terminal (10), the communication gateway (30) transfers information about the service menu selected by the user to a database server (70). The database server (70) retrieves personal information previously stored therein by the user according to the service menu selected by the user and transfers the retrieved personal information to the communication gateway (30). Then, the communication gateway (30) restores the personal information retrieved by the database server (70) into character or voice data and sends the restored character or voice data to the communication terminal (10). Therefore, the personal information can be prevented from being externally exposed when the personal information management service is provided to the user. Further, the personal information management service can be economically provided to the user.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

METHOD FOR PROVIDING PERSONAL INFORMATION MANAGEMENT SERVICE OVER COMMUNICATION NETWORK

Technical Field

The present invention relates in general to a method for providing a personal information management service over a communication network, and more particularly to a method for providing a personal information management service, in which a database server stores personal information of a user over the Internet and provides the stored personal information to the user over a mobile telephone or a general telephone.

Background Art

In a conventional method for providing a personal information management service to a user over a mobile telephone or a general telephone, generally, the user makes a telephone call to a call center, notifies his identification number and password to an operator of the call center and receives desired personal information from the call center operator.

However, the above-mentioned conventional personal information management service provision method has a disadvantage in that the call center operator retrieves desired personal information from a personal information database in response to a request from the user and informs the user of the retrieved personal information, resulting in an exposure of the personal information to the call center operator.

The above-mentioned conventional method has a further disadvantage in that it is less economical because it takes the user a considerable amount of time to receive the personal information management service and noneconomical factors such as the call center operator are required in providing the personal information management service to the user.

Disclosure of the Invention

Therefore, the present invention has been made in view of the above problems, and it is an object of the present invention to provide a method for providing a personal information management service over a communication network, in which a database server stores personal information of a user over the Internet and provides the stored personal information to the user over a mobile telephone or a general telephone, so that the personal information can be prevented from being externally exposed when the user uses the personal information management service, and the personal information management service can be economically provided to the user.

In accordance with the present invention, the above and other objects can be accomplished by a provision of a method for providing a personal information management service over a communication network, comprising the first step of allowing a user to access a communication gateway using personal communication terminal; the second step of allowing the communication gateway to identify the user using an automatic number identification service; the third step of allowing the user to select a desired one of service menus provided from the communication gateway using the communication terminal; the fourth step of allowing the communication gateway to transfer information about the service menu selected by the user to a database server; the fifth step of allowing the database server to retrieve personal information previously stored therein by the user according to the service menu selected by the user and transfer the retrieved personal information to the communication gateway; and the sixth step of allowing the communication gateway to restore the personal information retrieved by the database server into character or voice data and send the restored character or voice data to the communication terminal.

Brief Description of the Drawings

The above and other objects, features and other advantages of the present

invention will be more clearly understood from the following detailed description taken in conjunction with the accompanying drawings, in which:

Fig. 1 is a block diagram schematically showing the construction of a personal information management system for the execution of a method for providing a personal information management service over a communication network in accordance with the present invention;

Fig. 2 is a flowchart illustrating the method for providing the personal information management service over the communication network in accordance with the present invention;

Fig. 3 is a flowchart illustrating a procedure of providing a telephone number search service in accordance with the present invention;

Fig. 4 is a flowchart illustrating a procedure of providing a schedule management service in accordance with the present invention;

Fig. 5 is a flowchart illustrating a procedure of providing a voice mail service in accordance with the present invention;

Fig. 6 is a flowchart illustrating a procedure of providing an information sharing service in accordance with the present invention; and

Fig. 7 is a flowchart illustrating a procedure of providing an appointed day/time notification service in accordance with the present invention.

Best Mode for Carrying Out the Invention

With reference to Fig. 1, there is schematically shown in block form the construction of a personal information management system for the execution of a method for providing a personal information management service over a communication network in accordance with the present invention. As shown in this drawing, the personal information management system comprises a communication terminal 10, a first communication network 20, a communication gateway 30 for management of personal information, a computer 40, a second communication network 50, a Web server 60 for the personal information management, and a database server 70 for the personal information management.

The communication terminal 10 is connected to the communication gateway 30 over the first communication network 20. In the present embodiment, the communication terminal 10 may preferably include a mobile telephone, general telephone, Internet phone, etc.

In the present embodiment, the first communication network 20 may preferably include a telephone network containing domestic and international telephone lines, a public data network and the Internet. Further, the telephone network may utilize communication protocols such as R2, ISDN, SS7, etc., and the public data network and Internet may employ communication protocols such as H.323 TCP/IP, WAP, UDP, ATM, etc.

The communication gateway 30 for the personal information management interacts with the database server 70 in response to a user's request from the communication terminal 10 to provide the personal information management service to the user through the communication terminal 10.

The computer 40 is connected to the Web server 60 over the second communication network 50. In the present embodiment, the second communication network 50 may preferably include a public data network containing domestic and international lines and the Internet.

The Web server 60 for the personal information management supports an interface between the computer 40 and database server 70 to allow the user to store his personal information in the database server 70 or manage the stored personal information.

The database server 70 for the personal information management is adapted to store the personal information of the user therein for the provision of the personal information management service to the user. To this end, the database server 70 is connected to the Web server 60 and communication gateway 30 for the personal information management over a local area network (LAN) or a wide area network (WAN). In the present embodiment, the database server 70 for the personal information management may employ an Ethernet card as a network card and a TCP/IP protocol as a communication protocol, respectively, for the connection to the Web server 60 and communication gateway 30 for the

personal information management.

Now, a detailed description will be given of the method for providing the personal information management service over the communication network in accordance with the present invention, which is executed by the personal information management system with the above-mentioned construction.

In order to receive the personal information management service, the user has to store his personal information in the database server 70 for the personal information management in the following manner.

First, the user accesses the Web server 60 using the computer 40 and joins the personal information management system as a member. Upon joining the personal information management system as a member, the user is assigned with an identification (ID) number and password therefrom.

Then, the Web server 60 for the personal information management provides a personal information entry format to the user and, in turn, the user enters in the provided entry format a telephone number of a communication terminal for receiving the personal information management service and his personal information necessary to receive the personal information management service. In the present embodiment, the personal information management service may preferably include a telephone number search service, schedule management service, voice mail service, information sharing service, appointed day/time notification service, etc. Subsequently, the Web server 60 for the personal information management stores the communication terminal telephone number and personal information entered by the user in the database server 70.

Alternatively, in the case where the user wishes to use a plurality of communication terminals, he may store respective telephone numbers of the communication terminals and his personal information in the database server 70. Further, for the purpose of a dual maintenance of personal security, the user may enter a password consisting of arbitrary numerals or alphabetic characters within the range of twenty figures.

Fig. 2 is a flowchart illustrating the method for providing the personal information management service over the communication network in accordance

with the present invention, wherein the reference character "S" denotes a step.

As shown in Fig. 2, in order to receive the personal information management service, the user first accesses the communication gateway 30 over the first communication network 20 using the communication terminal 10 at step S1.

For gaining access to the communication gateway 30 to receive the personal information management service, the user utilizes a telephone number or additional service access number of the communication terminal 10, which may be, for example, "X-XXX-XXXX", "XXX-XXXX", "00XXX", "XXXX", etc., typically provided from a telephone service company according to a numbering system organized by the government, where "X" signifies any numeral between 0 and 9.

Then, the communication gateway 30 for the personal information management is provided with an automatic number identification service from the above telephone service company to identify the telephone number of the communication terminal 10 gaining access thereto. Upon identifying the telephone number of the communication terminal 10, the communication gateway 30 transfers it to the database server 70 at step S2.

At step S3, the database server 70 for the personal information management searches information stored therein for the telephone number of the communication terminal 10, transferred from the communication gateway 30, to determine whether the telephone number of the communication terminal 10 was previously registered. If the telephone number of the communication terminal 10 was previously registered at step S3, the database server 70 for the personal information management determines at step S4 whether a password for a dual maintenance of personal security was previously registered. Subsequently, the database server 70 transfers the determined results to the communication gateway 30.

In the case where it is determined at the above step S3 that the telephone number of the communication terminal 10 was not previously registered, the communication gateway 30 for the personal information management sends an

information message indicative of the non-registered state of the telephone number to the communication terminal 10 to notify the non-registered state of the telephone number to the user at step S5 and then releases a call connection to the communication terminal 10 at step S6.

On the other hand, in the case where the telephone number of the communication terminal 10 and the password for the personal security dual maintenance were previously registered at the above steps S3 and S4, the communication gateway 30 for the personal information management sends an information message indicative of the entry of the above password to the communication terminal 10 at step S7.

If the user enters the password by pushing corresponding buttons on the communication terminal 10, then the communication terminal 10 converts it into a dual tone multifrequency (DTMF) signal and sends the converted DTMF signal to the communication gateway 30 over the first communication network 20 at step S8.

Subsequently, the communication gateway 30 for the personal information management transfers the password entered in the above manner to the database server 70. The database server 70 for the personal information management determines at step S9 whether the entered password is the same as the previously registered one and then transfers the determined result to the communication gateway 30 at step S9.

If it is determined at the above step S9 that the entered password is not the same as the previously registered one, the communication gateway 30 for the personal information management sends an information message indicative of the re-entry of the password to the communication terminal 10 at step S10 to inform the user that the password was erroneously entered and then returns to the above step S8.

In the case where the entered password is the same as the previously registered one at the above step S9, the communication gateway 30 for the personal information management sends an information message indicative of the selection of a desired one of various personal information management service

menus, provided according to the present invention, to the communication terminal 10 of the user at step S11.

Then, the user selects a desired service menu by pushing corresponding buttons on the communication terminal 10 or outputting a prescribed voice over the communication terminal 10 and sends the selected result to the communication gateway 30 at step S12.

At step S13, the communication gateway 30 for the personal information management transfers the service menu result selected by the user in the above manner to the database server 70, which then retrieves personal information of the user pre-stored therein according to the service menu selected by the user and transfers the retrieved personal information to the communication gateway 30. Then, the communication gateway 30 restores the personal information retrieved by the database server 70 into character or voice data and sends the restored character or voice data to the communication terminal 10, resulting in the provision of the personal information management service selected by the user.

A detailed description will hereinafter be given of a procedure of providing the telephone number search service among the above personal information management service menus, with reference to Fig. 3.

If the user selects the telephone number search service at the above step S12 of Fig. 2 by pushing "11" on the communication terminal 10 or saying "TELEPHONE NUMBER" over the communication terminal 10, the communication gateway 30 for the personal information management recognizes that the telephone number search service has been selected by the user and then sends an information message indicative of the selection of a desired telephone number search method to the communication terminal 10 at step S21.

At this time, if the communication gateway 30 for the personal information management fails to recognize the selection of the personal information management service by the user, then it sends an information message indicative of the re-selection of a desired service menu to the communication terminal 10. Thereafter, upon receiving no response from the user within a predetermined period of time after sending the re-selection information message,

the communication gateway 30 for the personal information management sends the re-selection information message again to the communication terminal 10. Provided that there is no response to the re-selection information message, being sent twice, the communication gateway 30 automatically sends an information message indicative of the stop of the personal information management service to the communication terminal 10 and then breaks a communication line to the communication terminal 10.

On the other hand, in the case where the user selects a desired telephone number search method by pushing corresponding buttons on the communication terminal 10 or outputting a prescribed voice over the communication terminal 10, the communication gateway 30 for the personal information management recognizes the telephone number search method selected by the user and then transfers the recognized result to the database server 70 at step S22.

Then, the database server 70 searches for a telephone number pre-stored therein according to the search method selected by the user and transfers the searched result to the communication gateway 30 at step S23, and, in turn, the communication gateway 30 sends the result searched by the database server 70 in the form of a voice or character message to the communication terminal 30 at step S24.

Herein, the above telephone number search method can be modified in various ways on the basis of a menu technique generally used in a conventional audio response system. For example, the database server 70 may search for a telephone number associated with a stored first one among names arranged and stored alphabetically if a number 1 is pushed on the communication terminal 10, for a telephone number associated with a stored middle name if a number 2 is pushed and for a telephone number associated with a stored last name if a number 9 is pushed. Further, the database server 70 may search for a telephone number while forward skipping over one name if the number 1 is pushed on the communication terminal 10 under the above searched condition, while forward skipping over two names if the number 2 is pushed, while forward skipping over five names if a number 3 is pushed and while backward skipping over one name if

a number 4 is pushed. The database server 70 may search for a telephone number desired by the user in various manners other than the above manner.

Moreover, an automatic outgoing call origination service may be provided to allow the user to make a telephone call to a desired telephone number searched in the above manner. For example, if a number 7 is pushed on the communication terminal 10 after a desired telephone number is searched in the above telephone number search service, the communication gateway 30 may automatically originate an outgoing call to the searched telephone number.

Next, a detailed description will hereinafter be given of a procedure of providing the schedule management service among the above personal information management service menus, with reference to Fig. 4.

If the user selects the schedule management service at the above step S12 of Fig. 2 by pushing "22" on the communication terminal 10 or saying "SCHEDULE MANAGEMENT" over the communication terminal 10, the communication gateway 30 for the personal information management recognizes that the schedule management service has been selected by the user and then sends an information message indicative of the entry of a desired day and time to the communication terminal 10 at step S31.

In the case where the user enters a desired day and time by pushing corresponding buttons on the communication terminal 10 or outputting a prescribed voice over the communication terminal 10, the communication gateway 30 for the personal information management recognizes the day and time entered by the user and then transfers the recognized results to the database server 70 at step S32.

Then, the database server 70 for the personal information management retrieves schedule information about the day and time entered by the user and transfers the retrieved result to the communication gateway 30 at step S33, and, in turn, the communication geteway 30 sends the result retrieved by the database server 70 in the form of a voice or character message to the communication terminal 30 at step S34.

Next, a detailed description will hereinafter be given of a procedure of

providing the voice mail service among the above personal information management service menus, with reference to Fig. 5.

If the user selects the voice mail service at the above step S12 of Fig. 2 by pushing "33" on the communication terminal 10 or saying "VOICE MAIL" over the communication terminal 10, the communication gateway 30 for the personal information management recognizes that the voice mail service has been selected by the user and then sends an information message indicative of the selection of any one of either a recording function or reproduction function to the communication terminal 10 at step S41.

In the case where the user selects any one of either the recording function or reproduction function by pushing corresponding buttons on the communication terminal 10 or outputting a prescribed voice over the communication terminal 10, the communication gateway 30 for the personal information management recognizes that any one of either the recording function or reproduction function has been selected by the user at step S42.

If the recording function has been selected by the user at step S43, then the communication gateway 30 for the personal information management sends an information message indicative of the input of desired voice information to the communication terminal 10 at step S44.

Upon receiving desired voice information from the user over the communication terminal at step S45, the communication gateway 30 for the personal information management transfers the received voice information to the database server 70, which then stores it therein together with a recording day and time at step S46.

In the case where it is determined at the above step S43 that the reproduction function has been selected by the user, the communication gateway 30 for the personal information management recognizes such a situation and transfers the recognized result to the database server 70, which then retrieves voice information pre-stored therein and transfers it to the communication gateway 30 at step S47. Subsequently, the communication gateway 30 sends the voice information retrieved by the database server 70 to the communication terminal

S48.

That is, the voice mail service is provided to allow the user to record a main schedule or a main appointed time in voice and confirm it later over the communication terminal or Internet.

Next, a detailed description will hereinafter be given of a procedure of providing the information sharing service among the above personal information management service menus, with reference to Fig. 6.

If the user selects the information sharing service at the above step S12 of Fig. 2 by pushing "44" on the communication terminal 10 or saying "INFORMATION SHARING" over the communication terminal 10, the communication gateway 30 for the personal information management recognizes that the information sharing service has been selected by the user and then sends an information message indicative of the entry of a telephone number of a communication terminal for the information sharing to the communication terminal 10 at step S51.

In the case where the user enters a telephone number of a communication terminal (e.g., the communication terminal 10) for the information sharing by pushing corresponding buttons on the communication terminal 10, the communication gateway 30 for the personal information management recognizes the telephone number of the communication terminal for the information sharing, entered by the user, and then transfers the recognized result to the database server 70 at step S52.

Then, the database server 70 for the personal information management stores the telephone number of the communication terminal for the information sharing in a personal information item associated with a communication terminal (e.g., the communication terminal 10) of the user at step S53 and, in turn, the communication gateway 30 for the personal information management makes a telephone call to the communication terminal for the information sharing at step S54 to inform the user that he can share information with other members.

In other words, the information sharing service is provided to allow members of the personal information management system to share personal voice

mail services or information with one another.

Next, a detailed description will hereinafter be given of a procedure of providing the appointed day/time notification service among the above personal information management service menus, with reference to Fig. 7.

If the user selects the appointed day/time notification service at the above step S12 of Fig. 2 by pushing "55" on the communication terminal 10 or saying "APPOINTED TIME" over the communication terminal 10, the communication gateway 30 for the personal information management recognizes that the appointed day/time notification service has been selected by the user and then sends an information message indicative of the entry of an appointed day and time to the communication terminal 10 at step S61.

In the case where the user enters an appointed day and time at step S62 by pushing corresponding buttons on the communication terminal 10 or outputting a prescribed voice over the communication terminal 10, the communication gateway 30 for the personal information management recognizes the appointed day and time entered by the user and then sends an information message indicative of the entry of a notification day and time to the communication terminal 10 at step S63.

In the case where the user enters a notification day and time at step S64 by pushing corresponding buttons on the communication terminal 10 or outputting a prescribed voice over the communication terminal 10, the communication gateway 30 for the personal information management transfers information about the appointed day and time and notification day and time entered by the user to the database server 70, which then stores the transferred information therein at step S65.

Then, the database server 70 for the personal information management continuously searches the current day and time for the appointed day and time and notification day and time stored in the above manner. When a match occurs between the current day and time and the notification day and time during the continuous search, the database server 70 for the personal information management transfers information about the appointed day and time to the communication gateway 30, which then makes a telephone call to the

communication terminal 10 of the user to notify the user of the appointed day and time in the form of a voice or character message at step S66.

In other words, the appointed day/time notification service is provided to notify the user of a main schedule or a main appointed day and time by making a telephone call to a telephone number designated by the user.

In accordance with the present invention, there may be provided an additional service capable of allowing the user to check and manage details of respective services using the communication terminal 10 on the Internet. Further, the communication gateway 30 for the personal information management may pigeonhole information acquired through the automatic number identification service and data selected for the service provision according to members and then transfer and store the pigeonholed results to the database server 70.

Therefore, the user can check the used records of the respective services on the Internet, and such records can be transformed into items of a bill statement for charging a fee for each service on condition of advance or deferred payment.

Industrial Applicability

As apparent from the above description, according to the present invention, a database server stores personal information of a user over the Internet and provides the stored personal information to the user over a mobile telephone or a general telephone. Therefore, the personal information can be prevented from being externally exposed when a personal information management service is provided to the user. Further, the personal information management service can be economically provided to the user.

Although the preferred embodiments of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as disclosed in the accompanying claims.

Claims:

1. A method for providing a personal information management service over a communication network, comprising the steps of:

a) allowing a user to access a communication gateway using a communication terminal;

b) allowing said communication gateway to identify the user using an automatic number identification service;

c) allowing the user to select a desired one of service menus provided from said communication gateway using said communication terminal;

d) allowing said communication gateway to transfer information about the service menu selected by the user to a database server;

e) allowing said database server to retrieve personal information previously stored therein by the user according to said service menu selected by the user and transfer the retrieved personal information to said communication gateway; and

f) allowing said communication gateway to restore said personal information retrieved by said database server into character or voice data and send the restored character or voice data to said communication terminal.

2. The method as set forth in Claim 1, further comprising the step of g) allowing the user to store said personal information in said database server, said step g) including the steps of:

g-1) allowing the user to access a Web server using a computer and enter said personal information containing a telephone number of said communication terminal; and

g-2) allowing the user to store said personal information in said database server.

3. The method as set forth in Claim 1, wherein said service menus provided from said communication gateway include a telephone number search

service and wherein said step e) includes the step of allowing said database server to search for telephone numbers previously stored therein by the user if said telephone number search service is selected by the user and transfer the searched results to said communication gateway.

4. The method as set forth in Claim 1, wherein said service menus provided from said communication gateway include a schedule management service and wherein said step e) includes the step of allowing said database server to retrieve schedule information previously stored therein by the user if said schedule management service is selected by the user and transfer the retrieved result to said communication gateway.

5. The method as set forth in Claim 1, wherein said service menus provided from said communication gateway include a voice mail service and wherein said step e) includes the step of allowing said database server to retrieve voice information previously stored therein by the user if said voice mail service is selected by the user and transfer the retrieved result to said communication gateway.

6. The method as set forth in Claim 5, wherein said voice mail service further includes a recording function and wherein said step e) further includes the step of allowing said database server to store therein voice information of the user received through said communication gateway if said recording function is selected by the user.

7. The method as set forth in Claim 1, wherein said service menus provided from said communication gateway include an information sharing service and wherein said step e) includes the step of allowing said database server to share said personal information with a communication terminal designated by the user if said information sharing service is selected by the user.

8. The method as set forth in any one of Claim 1 to Claim 7, further comprising the steps of:

h) allowing said communication gateway to request the user to enter a password over said communication terminal;

i) allowing said communication gateway to transfer said password entered by the user to said database server; and

j) allowing said database server to compare said password entered by the user with one previously stored therein and authenticate the user in accordance with the compared result.

9. A method for providing a personal information management service over a communication network, comprising the steps of:

a) allowing a user to store information about an appointed day and time and a notification day and time in a database server;

b) allowing said database server to transfer said information about the appointed day and time to a communication gateway if a match occurs between the current day and time and the notification day and time; and

c) allowing said communication gateway to make a telephone call to a telephone number of the user to notify the user of the appointed day and time.

FIG. 1

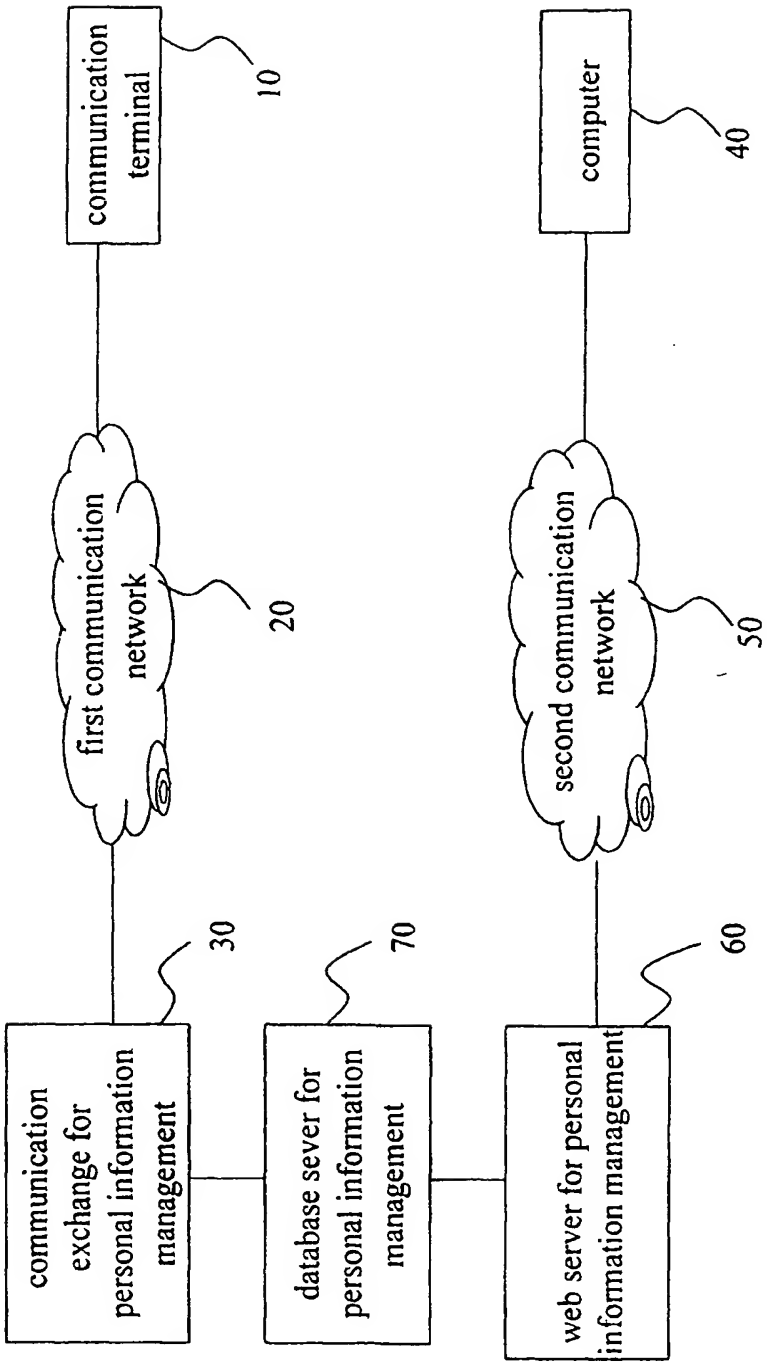

communication terminal
10
computer
40
first communication network
20
second communication network
50
30
70
60
communication exchange for personal information management
database sever for personal information management
web server for personal information management

FIG. 2

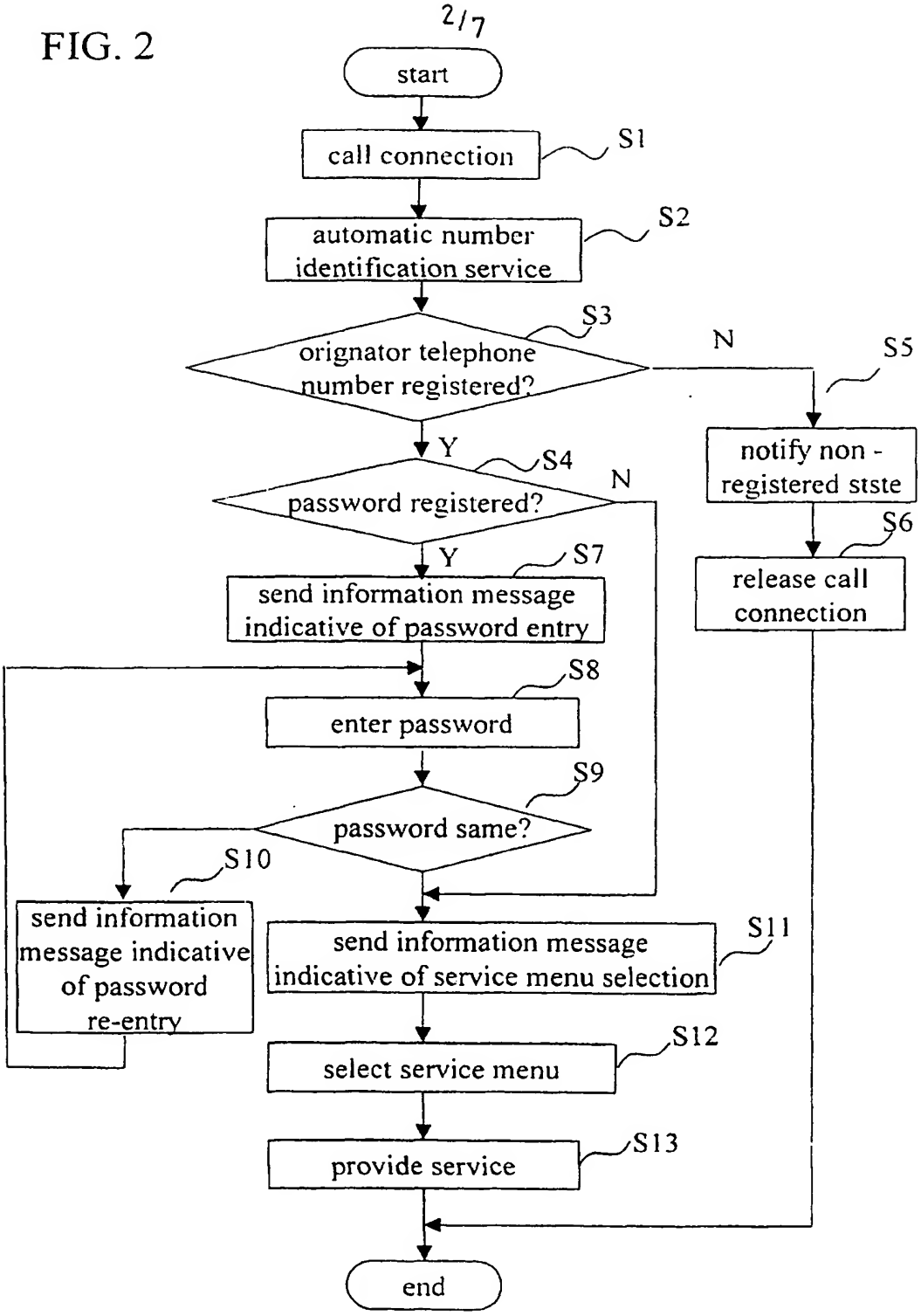

2/7
start
call connection
S1
automatic number identification service
S2
orignator telephone number registered?
S3
N
S5
notify non - registered stste
Y
password registered?
S4
N
S6
release call connection
Y
S7
send information message indicative of password entry
S8
enter password
S9
password same?
S10
send information message indicative of password re-entry
send information message indicative of service menu selection
S11
S12
select service menu
S13
provide service
end

FIG. 3

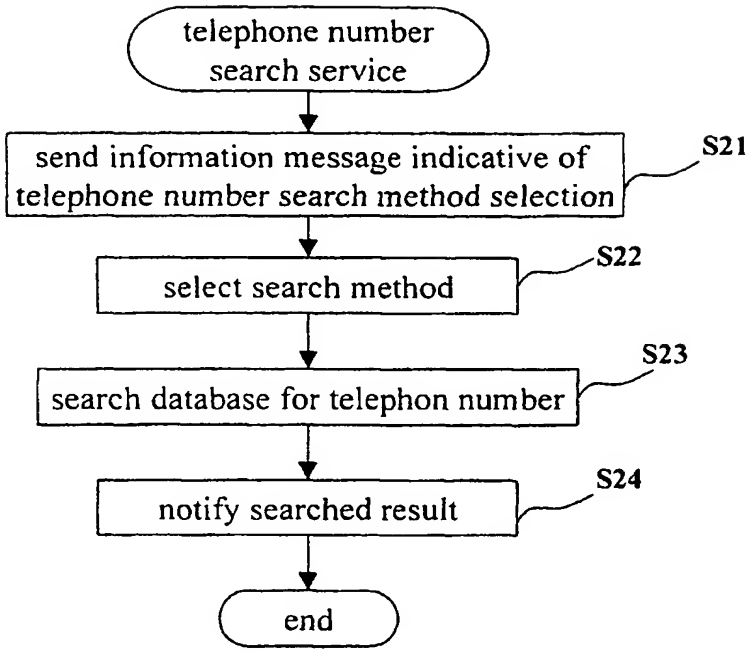

telephone number search service
send information message indicative of telephone number search method selection
S21
select search method
S22
search database for telephon number
S23
notify searched result
S24
end

FIG. 4

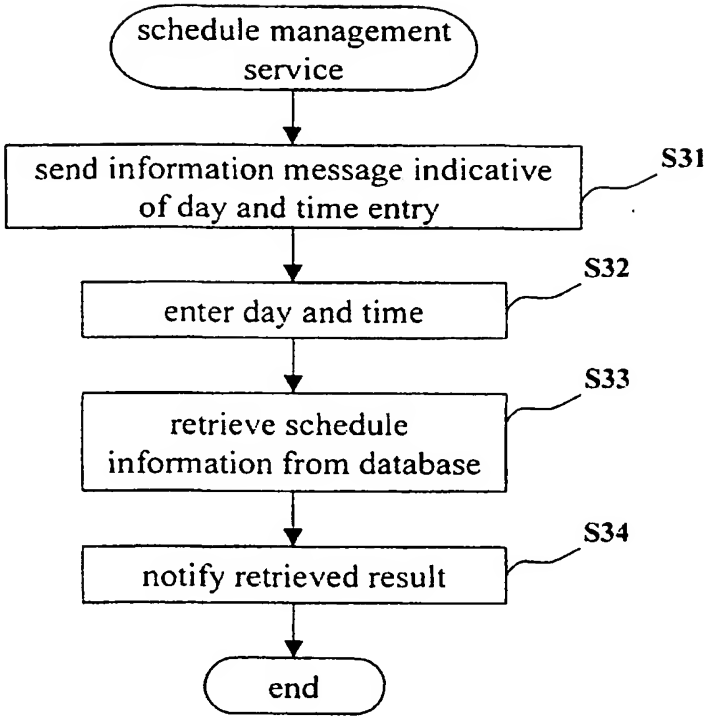

schedule management service
send information message indicative of day and time entry
S31
enter day and time
S32
retrieve schedule information from database
S33
notify retrieved result
S34
end

FIG. 5

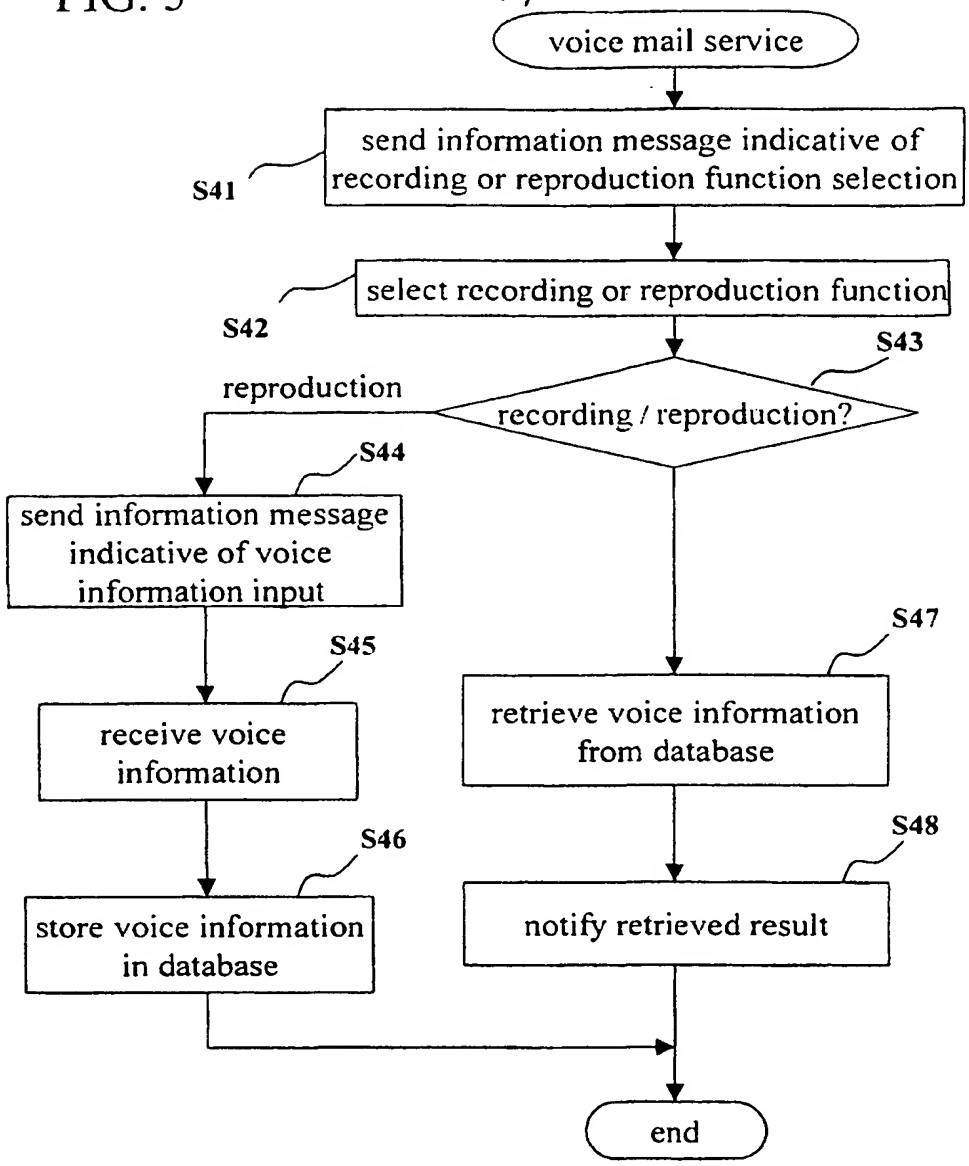

voice mail service
send information message indicative of recording or reproduction function selection
S41
select recording or reproduction function
S42
S43
recording / reproduction?
reproduction
S44
send information message indicative of voice information input
S45
receive voice information
S46
store voice information in database
S47
retrieve voice information from database
S48
notify retrieved result
end

FIG. 6

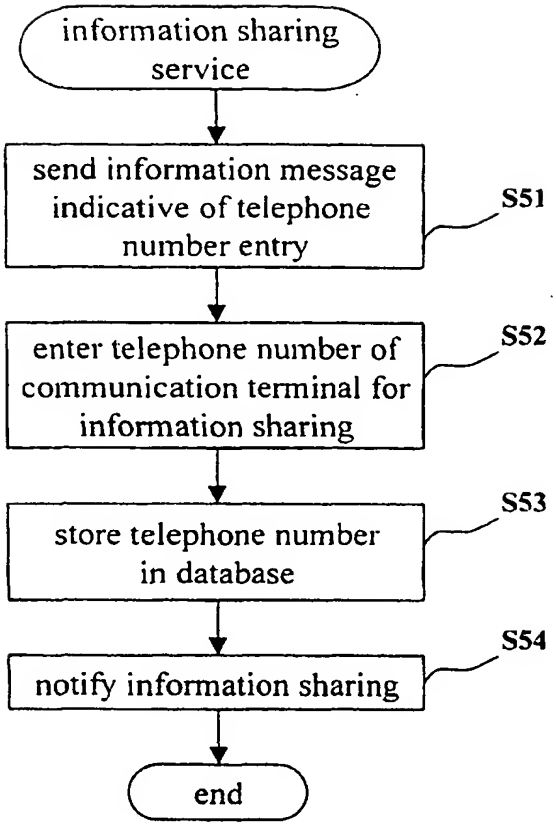
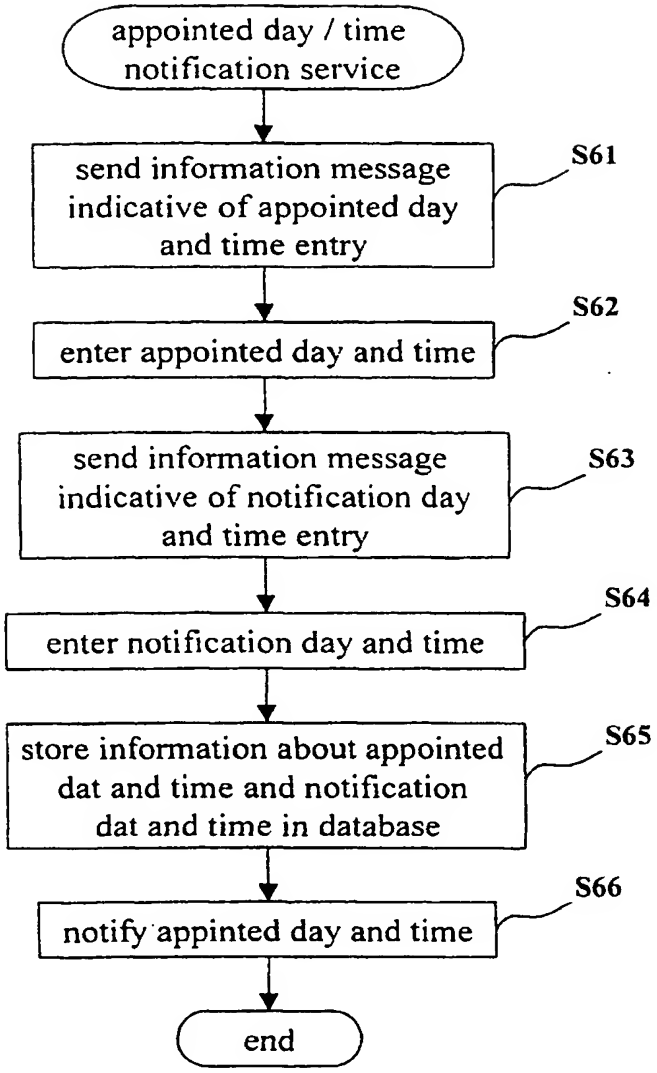

information sharing service
send information message indicative of telephone number entry
S51
enter telephone number of communication terminal for information sharing
S52
store telephone number in database
S53
notify information sharing
S54
end

FIG. 7


appointed day / time notification service
send information message indicative of appointed day and time entry
S61
enter appointed day and time
S62
send information message indicative of notification day and time entry
S63
enter notification day and time
S64
store information about appointed dat and time and notification dat and time in database
S65
notify appinted day and time
S66
end

INTERNATIONAL SEARCH REPORT

International application No.
PCT/KR00/00715

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04Q 7/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimun documentation searched (classification system followed by classification symbols)
H04Q 7/24,7/34, H04M 3/42,11/00

Documentation searched other than minimun documentation to the extent that such documents are included in the fileds searched
KOREAN PATENTS AND APPLICATIONS FOR INVENTIONS SINCE 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search trerms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	JP 11-146080 A (NTT DATA CORP.) 28 MAY 1999	1-9
A	JP 09-008917 A (NTT DATA TSUSHIN KK.) 10 JANUARY 1997	1-9

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevence
"E" earlier application or patent but published on or after the international filing date
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"Y" document of particular relevence; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents,such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
11 DECEMBER 2000 (11.12.2000)	13 DECEMBER 2000 (13.12.2000)
Name and mailing address of the ISA/KR Korean Industrial Property Office Government Complex-Taejon, Dunsan-dong, So-ku, Taejon Metropolitan City 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer BAE, Soon Goo Telephone No. 82-42-481-5742

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